Name: **Enrolment No:**	

UPES

End Semester Examination, December 2024

Course: Industrial Chemical and Environment **Semester: V**

Program: BSc (H) Chemistry **Time : 03 hrs.**

Course Code: CHEM3036P **Max. Marks: 100**

Instructions:

- **Read all the questions carefully.**
- **Use of scientific calculator is allowed.**
- **In Section B, Q 6 has an internal choice question.**
- **In Section C, Q 11 has an internal choice question.**

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Illustrate and elaborate on biogeochemical cycle of nitrogen.	**4**	**CO1**
Q 2	Differentiate between chemical catalyst and biocatalyst.	**4**	**CO1**
Q 3	Discuss the impact of air pollution on human health.	**4**	**CO2**
Q 4	How is nitric acid produced in the industry?	**4**	**CO3**
Q 5	Mention the different uses of caustic soda and hydrogen peroxide.	**4**	**CO3**

SECTION B
(4Qx10M= 40 Marks)

Q 6	Briefly list and describe the different disposal methods under solid waste management. **OR** i) Define e-waste. Provide examples and their sources. ii) List the different Rs from the view point of sustainability.	**10** **OR** **5+5**	**CO1**
Q 7	What are ferrous and non-ferrous metals? Give examples.	**10**	**CO3**
Q 8	i) Calculate HCV and LCV when 3.5 gm of solid fuel with 4% hydrogen content is burnt in a Bomb Calorimeter having 3500 gm of water. The initial and final temperatures of water were 29°C and 33.2°C, respectively. The equivalent weight of water is given as 550 gm. The latent heat of steam is 587 cal/g.	**6+4**	**CO1**

	ii) List the different corrections applied in the calculation of HCV.		
Q 9	Describe zone refining process. Illustrate the process using an appropriate diagram.	**10**	**CO3**
SECTION-C (2Qx20M=40 Marks)			
Q 10	Recall the different air and water pollutants. Mention their sources. How can their presence be reduced in the environment?	**20**	**CO2**
Q 11	Compare the traditional and green route synthesis reactions of allyl alcohol. Which green chemistry principles are being covered in the greener route? **OR** What are the different sources and types of radioactive waste? Elaborate on their management strategies.	**20**	**CO1**